IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with strikethrough. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please amend the claims as follows:

1. (original) An image compressing method comprising:

a first area separating step wherein by scanning bit map data in a main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more by a first area separating unit;

a first encoding step wherein the area including no black pixel separated by said first area separating step is encoded as an element by a first encoding unit;

a second area separating step wherein by scanning the logic row including the black pixels separated by said first area separating step in a sub-scanning direction which crosses the main scanning direction, the data is separated into an area including the black pixels and an area including no black pixel on a column unit basis by a second area separating unit;

a second encoding step wherein the area including the black pixels which was separated by said second area separating step and in which the number of continuous columns is equal to or more than 2 is encoded as an element by a second encoding unit;

a third area separating step wherein an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 is separated by a third area separating unit from the areas which were not encoded in said second encoding step; and

a third encoding step wherein the area which coincides with said reference pattern and was separated by said third area separating step is encoded by a third encoding unit.

2. (original) A method according to claim 1, wherein:

said reference pattern comprises a plurality of kinds of patterns of a predetermined number selected in order of the pattern whose frequency of appearance is high among the areas including the black pixels in which the number of columns is equal to 1 and which remain without being encoded by said second encoding step; and

in said third encoding step, the area including the black pixels in which the number of columns is equal to 1 and which was separated in said third area separating step is encoded by using a code showing a pattern number of the coincident reference pattern and a code showing a code type.

3. (original)   A method according to claim 2, wherein said reference pattern comprises a plurality of kinds of patterns of a predetermined number which have been selected in order of the pattern whose frequency of appearance is high with respect to the areas including the black pixels in which the number of columns is equal to 1 and have previously and statistically been obtained with respect to the area including the black pixels in which the number of columns is equal to 1 and which is separated in said third area separating step.

4. (original)   A method according to claim 1, wherein:
said reference pattern is a pattern in which one or a plurality of black pixels in one column are continuously included: and

in said third encoding step, the area including the black pixels in which the number of columns is equal to 1 and which was separated in said third area separating step is encoded by using a code showing positions of the black pixels in one column of the coincident reference pattern and the number of continuous black pixels and a code showing a code type.

5. (original)   A method according to claim 1, wherein:
said reference pattern is a pattern in which one black pixel in one column is included; and

in said third encoding step, the area including the black pixels in which the number of columns is equal to 1 and which was separated in said third area separating step is encoded by using a code showing positions of the black pixels in one column of the coincident reference pattern and a code showing a code type.

6. (original)   A method according to claim 1, wherein:
said reference pattern is a pattern in which one or a plurality of black pixels in one

column are included; and

in said third encoding step, the area including the black pixels in which the number of columns is equal to 1 and which was separated in said third area separating step is encoded by using a code showing positions of the black pixels in one column and a code showing the number of continuous black pixels and a code type.

7. (original)   A method according to claim 1, wherein:

in said first encoding step, the area including no black pixel obtained in said first area separating step is encoded by the number of rows which are skipped; and

in said second encoding step, the area including no black pixel obtained in said second area separating step is encoded by the number of columns which are skipped, and the area including the black pixels of two or more continuous columns separated in said second area separating step is separated into a same column pattern, a stairway-like pattern, and a repetitive pattern and encoded, respectively.

8. (original)   An image compressing method comprising:

a first area separating step wherein by scanning bit map data in a main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more by a first area separating unit;

a second area separating step wherein by scanning the logic row including the black pixels separated by said first area separating step in a sub-scanning direction which crosses the main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a column unit basis by a second area separating unit;

a third area separating step wherein an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 is separated by a third area separating unit from the areas including the black pixels in which the number of columns is equal to 1 and which were separated in said second area separating step; and

an encoding step wherein each of the areas separated by said first to third area separating steps is encoded as an element by an encoding unit.

9. (Currently amended)   A program retrieved from a computer-readable recording medium for allowing a computer to execute:

a first area separating step wherein by scanning bit map data in a main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more;

a first encoding step wherein the area including no black pixel separated by said first area separating step is encoded as an element;

a second area separating step wherein by scanning the logic row including the black pixels separated by said first area separating step in a sub-scanning direction which crosses the main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a column unit basis;

a second encoding step wherein the area including the black pixels which was separated by said second area separating step and in which the number of continuous columns is equal to or more than 2 is encoded as an element;

a third area separating step wherein an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 is separated from the areas which were not encoded in said second encoding step; and

a third encoding step wherein the area which coincides with said reference pattern and was separated by said third area separating step is encoded.

10. (Currently amended)   A program retrieved from a computer-readable recording medium for allowing a computer to execute:

a first area separating step wherein by scanning bit map data in a main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more;

a second area separating step wherein by scanning the logic row including the black pixels separated by said first area separating step in a sub-scanning direction which crosses the main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a column unit basis;

a third area separating step wherein an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 is separated from the areas including the black pixels in which the number of columns is equal to 1 and which were separated in said second area separating step; and

an encoding step wherein each of the areas separated by said first to third area separating steps is encoded as an element.

11. (original)   A computer-readable recording medium which stores a program for allowing a computer to execute:

a first area separating step wherein by scanning bit map data in a main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more;

a first encoding step wherein the area including no black pixel separated by said first area separating step is encoded as an element;

a second area separating step wherein by scanning the logic row including the black pixels separated by said first area separating step in a sub-scanning direction which crosses the main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a column unit basis;

a second encoding step wherein the area including the black pixels which was separated by said second area separating step and in which the number of continuous columns is equal to or more than 2 is encoded as an element;

a third area separating step wherein an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 is separated from the areas which were not encoded in said second encoding step; and

a third encoding step wherein the area which coincides with said reference pattern and was separated by said third area separating step is encoded.

12. (original)   A computer-readable recording medium which stores a program for allowing a computer to execute:

a first area separating step wherein by scanning bit map data in a main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more;

a second area separating step wherein by scanning the logic row including the black pixels separated by said first area separating step in a sub-scanning direction which crosses the main scanning direction, the data is separated into an area including black pixels and an area including no black pixel on a column unit basis;

a third area separating step wherein an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 is separated from the areas including the black pixels in which the number of columns is equal to 1 and which were

separated in said second area separating step; and

an encoding step wherein each of the areas separated by said first to third area separating steps is encoded as an element.

13. (original)   An image compressing apparatus comprising:

a first area separating unit which scans bit map data in a main scanning direction, thereby separating the data into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more;

a first encoding unit which encodes the area including no black pixel separated by said first area separating unit as an element;

a second area separating unit which scans the logic row including the black pixels separated by said first area separating unit in a sub-scanning direction which crosses the main scanning direction, thereby separating the data into an area including black pixels and an area including no black pixel on a column unit basis;

a second encoding unit which encodes the area, as an element, including the black pixels which was separated by said second area separating unit and in which the number of continuous columns is equal to or more than 2;

a third area separating unit which separates an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 from the areas which were not encoded by said second encoding unit; and

a third encoding unit which encodes the area which coincides with said reference pattern and was separated by said third area separating unit.

14. (original)   An image compressing apparatus comprising:

a first area separating unit which scans bit map data in a main scanning direction, thereby separating the data into an area including black pixels and an area including no black pixel on a unit basis of logic rows of a predetermined number as an integer of 1 or more;

a second area separating unit which scans the logic row including the black pixels separated by said first area separating unit in a sub-scanning direction which crosses the main scanning direction, thereby separating the data into an area including black pixels and an area including no black pixel on a column unit basis;

a third area separating unit which separates an area which coincides with a predetermined reference pattern in which the number of columns is equal to 1 from the areas

including the black pixels in which the number of columns is equal to 1 and which were separated by said second area separating unit; and

an encoding unit which encodes each of the areas separated by said first to third area separating units as an element.